

University of Groningen

Biodegradation of fluorinated environmental pollutants under aerobic conditions

Hasan, Syed Adnan

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2010

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Hasan, S. A. (2010). *Biodegradation of fluorinated environmental pollutants under aerobic conditions*. s.n.

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

ACKNOWLEDGEMENTS

I am thankful to Almighty Allah, most Gracious, who in His infinite mercy has guided me to complete this PhD work. May Peace and Blessings of Allah be upon His Prophet Muhammad (peace be upon him). I am highly indebted to my parents, Ejaz and Hameeda and my brothers, Arif and Zia for their continuous support that made every opportunity available to me throughout my life.

I am thankful to my promotor Professor Dr. Dick B. Janssen who gave me the opportunity to work under his supervision in his research group with some of the most talented people I have ever met. The experience I have had with Professor Janssen over the past four and half years cannot be summed up in a hackneyed phrase or saying, but I would like to express my gratitude and appreciate him for guiding me during the course of my research work with his unique style of “gradually increasing the level of criticism” and the most valuable lesson of “writing not too complex” and “feeling responsibility”. He urged me to work in his group in the Socratic Method by constantly thinking and asking questions to myself and to those who knew the answers at every step of my practical and writing work, which helped me to always think creatively and rationally.

I would like to thank the members of the reading committee, Professor Dr. B. Poolman, Professor Dr. J.D. van Elsas, and Professor Dr. L. Dijkhuizen for reviewing and evaluating my thesis.

For day-to-day lab support I thank Piet Wietzes for his very calm and “its possible” attitude, and Theodora Tiemersma in keeping all analytical instruments in perfect running condition. I would like to thank Jaap Kingma for helping me with 4-fluorophenol monooxygenase purification and Peter Jekel for discussions about enzyme kinetics. I would like to thank Sandra and Karlien for their assistance in administrative work during my stay here and specially submission of thesis and all other documentations.

I would like to thank our collaborators in Porto, Portugal, Professor Dr. Paula M. Castro and Anouk Duke for the isolation and characterization of *Rhodococcus* sp. strain FP1 and a wonderful reception for our meeting held in December 13-14, 2009 in Porto. I wish them good luck for their research work studying degradation kinetics of toxic fluorinated environmental pollutants and identification of degradation pathways.


I am really going to miss the other members of my research group, Prof. Dr. Marco W. Fraaije (group leader), Dr. Gerrit J. Poelarends (genius), Dr. Erik van Hellemond (smiley), Dr. Dominic P.H.M. Heuts (sensitive), Dr. Maria I.M. Ferreira (has a unique

laughing style), Dr. Anett Kirschner (future professor), Dr. Wiktor Szymanski (bioChemist), Dr. Edwin van Bloois (protein expert), Ghania Hasnaoui-Dijoux (quiet) Jianfang Jin (my best friend of Janssen group), Chiara Tarabiono (soft spoken), Martijn Koetsier (art lover), Roga Kembaren (enthusiastic), Ciprian Crismaru (brand conscious), Marcus Schallmey (my research brother), Wu Bian (scientist+sportsman), Ite Teune (encyclopedia), Alja Westerbeek (caring), Christiaan Postema (innovative), Remko Winter (good presenter), Hanna Dudek (PAMO-mutants expert), Anette Riebel (everyone's friend), Ana Toplak (thinker and dreamer), Gocia Kopacz (friendly) and our new colleagues, Dr. Hein Wijma (bioArchitect), Matthew Heberling (focused), Robert Floor (cooperative), Hugo van Beek (scientist), Maarten Groenveld (confident) and Dr. Gonzalo de Gonzalo (BVMO-friend) for their cooperation and valuable suggestions.

My special thanks to Ravi Marreddy for guiding me with two-dimensional gel electrophoresis and Jan van Leeuwen for accompanying me to travel by bike in July 2007 to different geographical sites in The Netherlands. These sites were contaminated with herbicides, pesticides and other recalcitrants and situated 30-40 km away from our laboratory. We collected soil samples for the isolation of bacterial strains capable to degrade fluorinated compounds. I would also like to thank Dr. Hjalmar P. Permentier, who guided me with analyzing and identifying proteins from 2-D gels, Dr. Daniel E. Torrez Pazmiño for infinite discussions on various topics including BVMOs and Christiaan Postema for the translation of English summary to Dutch.

I am also thankful to my Pakistani colleagues (HEC Scholars) of the Janssen group, Muhammad I. Arif and Ghufrana Samin for useful discussions and wish them good luck for their PhD studies.

I would like to acknowledge the financial support of HEC (Higher Education Commission), Government of Pakistan under HEC-NUFFIC overseas scholarship program and thank to all those people who have been involved in taking care of me during my PhD studies in Groningen, The Netherlands.

A handwritten signature in blue ink, appearing to read 'Syed Adnan Hasan', with a long horizontal flourish extending to the right.

Syed Adnan Hasan

2010